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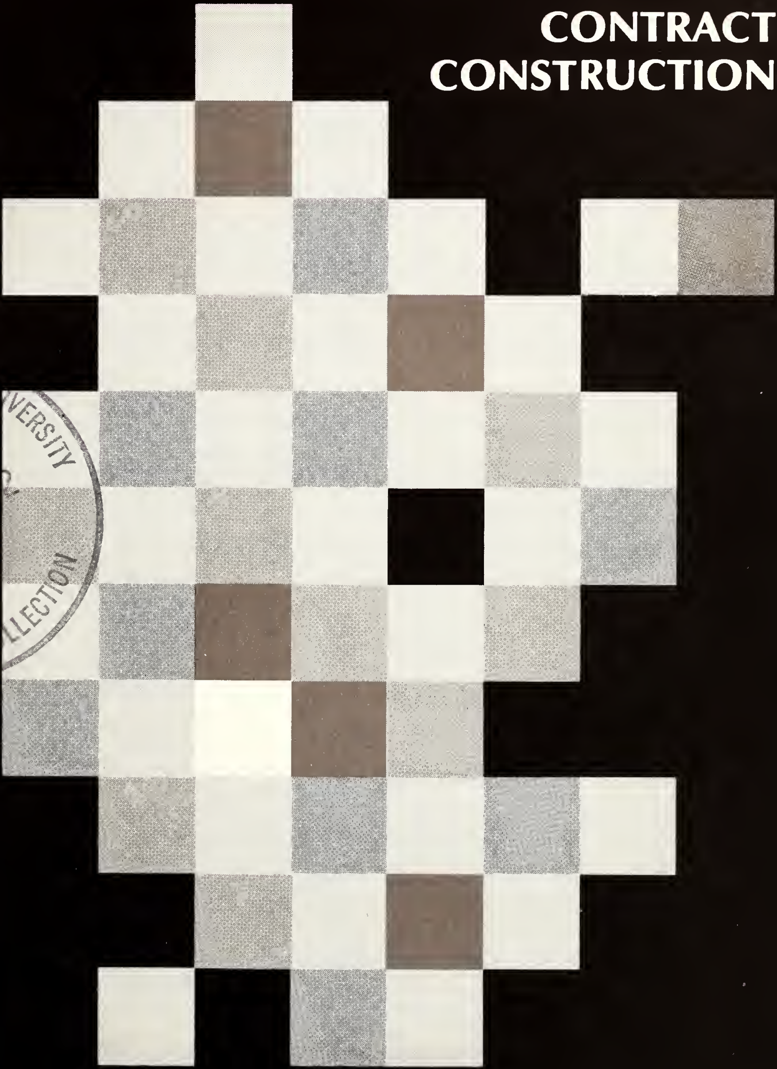
URBAN BUSINESS PROFILE

CONTRACT CONSTRUCTION



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URBAN BUSINESS PROFILE

CONTRACT CONSTRUCTION

SIC Division C—Major Groups 15 and 17

April 1972
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Prepared for
ECONOMIC DEVELOPMENT ADMINISTRATION
in cooperation with
OFFICE OF MINORITY BUSINESS ENTERPRISE

U. S. DEPARTMENT OF COMMERCE
Washington, D.C. 20230
Peter G. Peterson, Secretary
Robert A. Podesta, Assistant Secretary
for Economic Development
John L. Jenkins, Director
Office of Minority Business Enterprise

U. S. Depository Copy

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FOREWORD

As part of a continuing program to provide encouragement and assistance to small business ventures, the U.S. Department of Commerce is issuing a series of Urban Business Profiles.

It is hoped that these reports will serve as a meaningful vehicle to introduce the prospective small urban entrepreneur to selected urban-oriented businesses. More specifically, a judicious use of these profiles could: provide a potential businessman with a better understanding of the opportunities, requirements, and problems associated with particular businesses; provide guidelines on types of information required for location-specific feasibility studies; assist urban development groups in their business creation activities.

Robert A. Podesta
Assistant Secretary
for Economic Development

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URBAN BUSINESS PROFILES

URBAN BUSINESS PROFILE

Contract Construction

(SIC Division C—Major Groups 15 and 17)

I. RECOMMENDATION

Entry into the contract construction industry is recommended only for those who have some technical knowledge of the construction process and, more importantly, a sound background in business management. For although it is estimated that the volume of construction will continue to rise at the rate of 10 to 15 percent per year, the failure rate has been high and the industry has been justifiably characterized as "high risk/high gain." Considering the number of uncontrollable factors that bear heavily on the ultimate profitability of a contract (weather, the state of the economy, etc.) it is extremely important that the contractor or manager be able to manage effectively those factors that can be controlled, such as cash flow, scheduling, estimating and bidding.

The industry can, however, be attractive to the minority entrepreneur. Contract construction is characterized by ease of entry and allows operation at a wide range of scales including relatively small volume levels. Compared to other forms of business, the capital requirements for starting in the construction business are not great. Overhead can be kept to a bare minimum (operation out of one's residence is not uncommon), and the minimum amount of money needed would be one third of the value of an anticipated contract plus a minimal overhead level. (It takes an outlay of one-tenth to one-third of the contract cost before payments to the contractor begin.) Thus, despite the risks that may be involved, a prospective entrepreneur with the required business skills would be well placed to capitalize on growth trends in the industry.

II. DESCRIPTION

A. Identification of Industry

As defined by the Standard Industrial Classification (SIC) Manual of 1967, contract construction activity is included within the following broad categories:

Major Group 15: Building Construction—General Contractors. This group includes building contractors primarily engaged in the construction of dwellings, office buildings, stores, farm buildings, and other projects of a similar character.

Major Group 16: Heavy Construction Contractors. This group includes contractors primarily engaged in the construction of other than buildings—highways, streets, bridges and tunnels, docks and piers, dams and water projects, etc. This group will not be considered in this profile.

Major Group 17: Construction—Special Trade Contractors. Included in this group are contractors primarily engaged in specialized construction activity such as plumbing, painting, electrical work, carpentry, etc.

(Operative Builders who build on their own account for resale or lease and investment builders who build structures on their own account for rental are classified in Major Group 65, Real Estate. Establishments so classified are not included in this profile.)

B. Dimensions of Industry

Construction represents a major component of the United States economy. During peacetime periods, this industry accounts for 10 to 11 percent of the total gross national product. For 1969, the total gross investment in construction reached $90 billion. Approximately one-third of this investment represented public construction while the remaining two-thirds was split about evenly between private residential and nonresidential construction.

A 1968 Small Business Administration (SBA) report estimated the number of establishments in the industry at approximately 500,000 "visible" (an established place of business or at least one paid employee) firms plus about 250,000 independent operators.

Minority ownership in the industry, however, is disproportionately low, both with respect to total population and with respect to minority ownership in business as a whole. The 1968 SBA report estimated that about 3 percent of all U.S. businesses are owned by nonwhites, while no more than 8,000, or 1.6 percent of the visible construction businesses, are nonwhite owned. Nonwhites, however, are better represented among the independent operators, comprising 10 percent or more of this group. Given the anticipated growth of the construction industry and various programs to overcome the traditional problems of the minority contractor, the 1968 Small Business Administration report foresaw the possibility of increasing the number of minority-owned firms to 70,000 or 80,000 by 1978.

C. Characteristics of the Contract Construction Industry

Contract construction involves the agreement on the part of an establishment to perform a specified series of operations resulting in a new or modified physical structure. As an industry, contracting contrasts with other industries in a number of ways.

Unlike other industries, the product of the contractor does not lend itself to standardization. Each job produces a different product and is unique. Other conditions surrounding the production process, such as payment terms, location, and financing availability and arrangements, also are not generally standardized.

The contractor takes a new and unique risk with each contract he signs. Another significant difference between contracting and other forms of industrial activity lies in the fact that it is one of the few industries in which a price is usually fixed before the product is produced. Upon signing a contract, the contractor is legally bound to perform and cannot curtail production to minimize loss without doing irreparable damage to his business reputation.

Additional problem areas which confront the contractor are highly competitive bidding on projects, a market that is dependent on the state of the economy, seasonality of work, unpredictability of weather, labor relations, interest rates, and complex purchasing and unavoidable dependence on others (on owners for payment, on other contractors and subcontractors for performance as specified and scheduled).

Because the industry is so varied, there are certain advantages to the prospective contractor. There is operating room within the industry for a variety of activities at a wide range of scales. The bulk of the firms are small, but the bulk of business goes to the larger firms. Entrance is relatively easy and growth potential great. Although construction activity is cyclical and uneven, growth for the industry in the long run is virtually assured (approximately 10 percent a year is currently estimated).

1. *The Actors in the Contract Construction Industry*

One of the difficulties for the construction contractor is the number and variety of participants in the construction process with whom he must deal. These actors and their roles are briefly defined:

a. *Contractors* are those who enter into agreements to perform certain building operations. They are of two types:

General Contractor—The general contractor provides overall supervision of the job, including obtaining and coordinating the subcontractors, and is responsible for satisfactory completion of the job as specified by the contract. The general contractor may perform the subcontractor's function (i.e. the specialty trades), but usually not for more than one or two specific construction operations. The contractor receives payment from the owner as specified by the contract, and is responsible for payment to subcontractors and suppliers.

Specialty Contractor—The specialty contractor specializes in one specific construction operation such as plumbing, painting, or electrical installation. He may work directly for an owner or serve in a subcontractual role for a general contractor. He is dependent on the general contractor for payment.

b. *Owner*. The owner is the individual who contracts for the job and makes the payment. He determines the price range, accepts bids or contract offers, fixes the payment schedule, establishes the desired work schedule and completion date, and provides plans and specifications, often through an architect or engineer. The owner also determines acceptability of the completed job, subject to legal settlement in the event a dispute arises.

c. *Architect or Engineer*—The engineer develops the plans for the project and specifies materials and installation methods to be used. He often provides a preliminary cost estimate and approves progress estimates before payment is made to contractors. He also provides supervision and passes judgement on acceptability of the final job.

d. *Materials Suppliers*—Materials suppliers provide job materials and, by deferring payment for a short period of time, serve as an important source of temporary credit. (A poor payment record to a supplier may result in a contractor being placed on a collect-on-delivery basis. This hampers the contractor by necessitating greater amounts of working capital.)

e. *Labor Force*—The labor force performs according to the direction of the builder/contractor. As a key cost and quality factor, the relationship between the contractor and his labor force is a critical job component.

f. *Bond Companies*—Owners often demand bonds of contractors, and contractors in turn often require them of subcontractors. They are a legal requirement for all public work. Bonding companies provide bonds for a certain percentage of the contract price. There are three main types of bonds:

(1) *Performance* bonds assure completion of the job according to plans and specifications. If the contractor defaults, the bonding company steps in and hires another contractor to complete the job.

(2) *Payment* bonds guarantee that all subcontractors, materials suppliers, etc. dealing with the bonded contractor will be paid off so that the owner can receive the finished product free of all liens and claims.

(3) *Contract* bonds guarantee both completion of the job and the payment of all liens.

Bonding companies have preferential rights over other creditors if they must step in and perform. They are generally conservative institutions and may be reluctant to bond new contractors. Because of their stake in contractor performance, bonding companies are usually willing to provide valuable advice and assistance.

g. *Financial Institutions*—These institutions, usually banks, serve as an important source of short term financing for contractor and owner alike. They generally require strong evidence of the contractor's ability to perform as a prerequisite for a loan. Like bonding companies, they may be a source of sound business advice for the contractor.

2. *Competition in Contract Construction*

Competition in the industry serves to keep net profit margins low. Dun and Bradstreet reported a 1969 industry return on sales (ROS) of 1.23 percent, although there is some evidence that smaller firms are able to report a higher figure by understating the value of the proprietor's contribution to his firm's revenues. The smaller contractor, for example, may keep his own books in the evening at no "cost" to the firm.

These figures suggest that a large portion of the contracting firms operates at a subsistence level. Whereas only six of 68 manufacturing industries included in a Dun and Bradstreet survey operate at a lower net worth to sales ratio than do general contracting, low overhead costs permit such operations to exist.

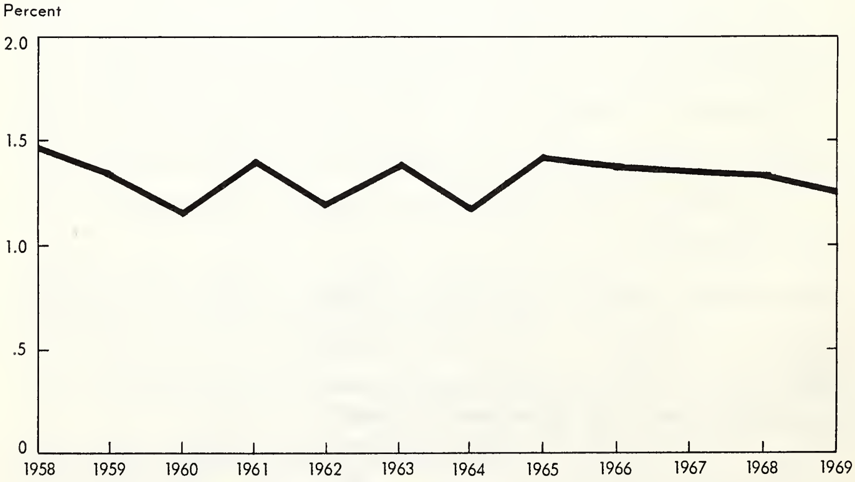
With a large number of smaller firms, many of which would have to be classified as marginal, competition in the industry is keen. This high level of competition is a prime cause of the low level of profit margin. Competition in the construction industry is largely price competition. While price is the predominant variable by which contracts are awarded, the business reputations of the competitors are also important. Even though the owner can protect himself against failure on the part of the contractor (by requiring a bond and/or through court action), delays caused by contract failure can be costly to the owner in terms of time and money. Therefore, an owner is likely to award a contract to the contractor who has demonstrated a capability of executing the contract expeditiously and on time. Also, although all bidders are competing to produce the same product, not all workmanship is of the same quality. A reputation for producing quality work as well as one for efficiency is therefore beneficial to the contractor.

The high level of competition in the construction industry is further evidenced by its high rate of failure. The 1968 Dun and Bradstreet report on business failure shows failures among construction firms comprised 17.3 percent of all business failures, or twice as many as the industry's portion of total business activity suggests.

3. *Profitability*

Construction contractors normally operate on a small margin of net profit. Below is a graph showing the trend in average net profits on net sales, or return on sales (ROS), for general building contractors since 1958.

GENERAL BUILDING CONTRACTORS
AVERAGE NET PROFITS ON NET SALES (ROS)
1958-1969



Specialty contractors typically generate a somewhat higher ROS than general building contractors. Whereas the latter group showed average net profits of 1.23 percent in 1969, plumbing, heating, and air-conditioning contractors averaged 1.71 percent and electrical work contractors 2.36 percent in 1969.

4. Problem Areas for the Construction Contractor

A number of specific problem areas can be isolated as causes of the high industry failure rate.

a. *Estimating and Bidding*—Estimating job costs is a complex operation that is crucial to a successful contracting business. Winning a contract with a bid based on an inaccurate estimate can be fatal to the contractor. Contractors will commonly bid against the competition rather than on the basis of the anticipated cost of carrying out the contract. The combination of underestimation with a low profit margin is an invitation to disaster.

Careful, realistic bidding not only insures against loss but aids in the execution of the contract since it requires that forethought be given such key job components as materials, scheduling, financing, and subcontract costs. Estimating for a specialty trade contract involves careful determination of all cost factors (labor, materials, etc.). Bidding is based on cost estimates plus the overhead and profit factors. To the degree that the general contractor subcontracts specialty work, he fixes his cost by legally binding the subcontractor to perform the specified work for the specified price. Cost overruns become the responsibility of the subcontractor. The resultant loss is his, not the general contractor's, and not the owner's. The general contractor will bid based on his own estimates for specialty work he performs, the bids submitted by the various subcontractors, and his own overhead and profit margin.

b. *Cash Flow*—Because prompt payment is critical to continued availability of credit and the contractor's reputation, it is vital that cash balances and transactions be carefully planned so that necessary payments can be made on time. Contractors and subcontractors must be sure that sufficient capital is available to meet payrolls and costs that come due before payment is received for work completed. Critical scheduling binds can occur if supplies can not be paid for and outside credit is not available. A discussion of the various types of contract agreements and contractual payments can be found in the appendix.

c. *Buying*—For specialty contractors, some inventory of supplies is necessary. However, there are problems of cost, spoilage, and storage that are sometimes overlooked in purchasing these supplies.

Overbuying is especially costly when it involves unstable materials such as paint and plaster. Bargain buying can result in more loss than gain.

To assure quick delivery and favorable discount and credit terms, good relations with suppliers are something to be coveted. Better customers receive preferential treatment from suppliers. High-volume, established customers might receive 40-day 15 percent discount terms, while the smaller newer customer might get only C.O.D. or 15-day terms with only a 10 percent discount.

Large expenditures for equipment are best avoided when the equipment cannot be put to steady use. Such special equipment can be rented or leased when needed. Renting avoids the problem of having to take marginal jobs just to pay for equipment and to keep it in use.

d. *Record Keeping and Cost Control*—Improper estimating and other financial problems are usually related to poor record keeping and cost control. A common and potentially serious problem for the new contractor is the confusing of accounts among the various components of one job, accounts for several jobs, and funds relating to business with personal funds. Good records help to provide a solid base for estimating, better job supervision, elimination of material and labor wastage, and a better basis for computing taxes and reserve accounts.

e. *Bonding*—All public construction, virtually all private Federal Housing Administration (FHA)-insured construction, and much private construction, especially larger jobs, requires that the contractor be bonded. General contractors will often require bonds of specialty subcontractors. Bonding companies are very cautious about writing bonds, especially for small contractors. One official of a contractors' association states that yearly volume of $100,000 is a virtual prerequisite for bonding. Yet most contractors do not operate at this volume, and certainly the newcomer to the field will not fall into the $100,000+ category. In order to land the larger more lucrative contracts, therefore, the novice contractor must prove himself to the bonding companies by successful performance on a series of smaller contracts which do not require bonding.

The bonding problem is particularly acute for minority contractors. Bonding companies will not bond contractors unless they are reasonably certain that the contractor has the experience, organizational, and financial capacity to undertake and satisfactorily complete the project. While some government programs and private sources have alleviated the problem of insufficient capital to an extent, it remains difficult for the minority contractor to gain the experience and to prove managerial capability sufficient to gain the approval of bonding companies. It becomes a vicious cycle; the minority contractor cannot get bonding without large job experience and cannot gain large job experience without bonding. While this is a problem for anyone venturing into the contracting business, the development of experience and managerial capability is more difficult for the minority individual who has been denied access to the construction trades. This has deprived the minority member of the entry at the first step in a normal process of advancement in the construction industry: skilled craftsman to foreman to small contractor to large contractor. Aware of the bonding difficulties of minority contractors, FHA has waived its bonding requirement on all FHA-insured projects of less than $500,000. However, the lending institution or owner of the project may still require a bond, as may the contractor for his subcontractors.

The Housing Act of 1970, signed into law in January 1971, authorized the Small Business Administration to utilize an existing revolving fund of $10 million to underwrite the bonding of small construction contractors by assuming 90 percent of the loss of the bonding company should a loss materialize. (This is the same fund that also supports a lease guarantee program.) There is a fee to the bonding company for this loss insurance. Projects so underwritten are limited to those of less than $500,000 and may be either the private or public sector. The intent of this program is to diminish substantially the bonding risk of surety companies so as to allow smaller contractors to obtain the bonds necessary to compete successfully for the larger contracts necessary for business growth.

f. *Overextension*—It is understandable why businessmen are reluctant to turn away business. Accepting work beyond one's capacity, however, can lead to problems, especially in management. Capacity is a function of capital, equipment, personnel, past experience, and business know-how. A heavy workload requires business skill, financial strength, careful cost control, and coordinating skill. These are capabilities which come from business experience, not technical experience. The skilled craftsman first venturing into the business end of the industry should be wary of business overload. Another danger is overextension beyond one's financial capabilities. With insufficient capitalization for the workload, an otherwise small or minor cost or payment problem can be disastrous. One rule of thumb says that incomplete work should not be valued at more than 10 times the working capital.

III. RETURNS ATTAINABLE IN THE CONSTRUCTION INDUSTRY

Presented on the following pages are hypothetical annual financial statements for three representative contracting businesses. The profit levels projected are neither excessive nor meager, given the assumed scale of operations. These cases assume no extraordinary problems of operation. It must be stressed that circumstances and/or mismanagement could easily alter these figures to erase the profit shown.

Situation I

Two electricians have established themselves as a partnership to perform electrical subcontract work. The projection is for their second year of business. They do a total volume of $50,000 in business, almost half of which is one large contract for the electric work on a 40-home subdivision. Additionally, they perform the electrical work on a small shopping center and carry out a series of smaller jobs plus some repair work.

Labor costs for the partnership come to $20,000 for the year, half of which goes to the partners themselves working as craftsmen in the execution of their contracts. Additionally, they draw $1,500 for the year from the firm, and show a yearend profit of $6,000. Therefore, in self-generated wages, draws and profits, the partners divide $17,500 for an income, before Federal income tax, of $8,750 each.

SALES			
40 home subdivision @ $600/home	$24,000		
Small shopping center	10,000		
Small jobs	12,000		
Repair work	4,000		
Total		$50,000	100%
COSTS OF PRODUCTION			
Materials	$15,000		
Labor	20,000*		
Total		$35,000	70%
GROSS PROFIT		$15,000	30%
OVERHEAD EXPENSES			
Wages (clerical help)	1,000		
Rent	1,000		
Interest	250		
Taxes	1,000		
Bad debts	100		
Repairs	900		
Depreciation, amortization	1,250		
Other (licenses, vehicle costs, tool losses)	2,000		
Payments to partners and bonuses	1,500		
Total		$ 9,000	18%
NET OPERATING PROFIT BEFORE TAXES		$ 6,000	12%

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* Half to partners working as craftsmen

Situation II

A medium-sized general contractor does a business volume of $120,000 for the year. This work includes the construction of three stores, substantial remodeling of five homes and two stores, and a series of smaller jobs (such as finishing an unfinished basement or adding a room to a home).

On this volume, the contractor retains a gross margin of one-quarter or $30,000 which, after overhead is deducted, yields an income for the year of $8,800 before payment of Federal income taxes.

SALES			
New construction—3 stores	$60,000		
Remodeling—5 homes	30,000		
Remodeling—2 stores	10,000		
Small jobs	20,000		
Total		$120,000	100%
COST OF PRODUCTION			
Materials	$25,000		
Labor	20,000		
Subcontracts	45,000		
Total		$ 90,000	75%
GROSS PROFIT		$ 30,000	25%
OVERHEAD EXPENSES			
Salaries	$ 7,800		
Rent	900		
Interest	750		
Taxes	2,000		
Bad debts	250		
Repairs	2,000		
Depreciation, amortization	3,000		
Other	4,500		
Total		$ 21,200	17⅔%
NET OPERATING PROFIT BEFORE TAXES		$ 8,800	7⅓%

Situation III

A well established homebuilder has reached an output of 20 homes per year which sell for an average of $30,000. The sale of these homes yields a revenue level of $600,000. Production of the homes costs the developer/contractor $520,000. His gross profit, therefore, is $80,000. From this is deducted his overhead cost to yield a before-taxes income of $30,000.

This high income is accompanied by a high risk factor. Acting as a developer, the contractor is not assured of his money upon completion of the project. Nor does he receive compensation throughout the production process. Should production costs be underestimated and/or competition and market factors preclude the sale of the homes at the planned asking price, the developer/contractor could end the year with substantially less than an income of $30,000. Also, should several homes remain unsold for longer than anticipated, increased expenses could result in unexpected losses.

	Per unit	20 units		
SALES—20 homes at $30,000			$600,000	100%
COSTS OF PRODUCTION				
Materials	$ 6,000	$120,000		
Labor	5,000	100,000		
Subcontracts	10,000	200,000		
Land—Raw	3,000	60,000		
Developed	2,000	40,000		
	$26,000	$520,000	$520,000	86⅔%
GROSS PROFIT			$ 80,000	13⅓%

OVERHEAD EXPENSES				
Financing expenses				
Interim financing, construction loans	$ 1,600			
Fees, commitment, origination or standby	600			
Interest on notes and mortgages	400			
Land development loan expense	0			
Discounts on mortgages (points)	800			
Closing costs paid for customers	0			
Hazard or builders risk insurance	400			
Other financing costs	200			
Total		$ 4,000		
Marketing expenses				
Salaries and commissions	$ 6,200			
Advertising	5,100			
Sales office expense	1,350			
Model home expense	600			
Model home maintenance	0			
Sales showroom expense	450			
Sales training expense	550			
Consultant fees—marketing	0			
Other marketing department expense	750			
Total		$15,000		
General and administrative expenses				
Salaries	$15,000			
Office expense	6,000			
Depreciation and amortization	3,000			
Taxes	1,500			
Insurance	2,000			
Professional fees	3,000			
Travel and entertainment	250			
Contributions	150			
Other	100			
Total		$31,000		
Total			$ 50,000	8⅓%
NET OPERATING PROFIT BEFORE TAXES			$ 30,000	5%

IV. GUIDANCE IN STARTING A CONSTRUCTION BUSINESS

A. Growth Ladder for Contract Construction

The nature of the contracting business within the construction industry implies a series of steps by which an individual would logically start and grow in the industry. These are as follows:

1. Craftsman
2. Subcontractor/craftsman
3. Subcontractor
4. Contractor/subcontractor
5. Contractor
6. Developer/contractor
7. Developer

While entrance into the industry can be and is made from without (from other forms of business, architecture, law, finance, etc.), this series of steps represents a continuum for growth wholly within the construction field. As the individual establishing a contracting business progresses from one function to a higher one, he generally will play a dual role, assuming both the function from which he is progressing and that to which he aspires. Thus, the craftsman turned subcontractor will continue to perform as a craftsman as he builds his business as a subcontractor. Likewise, the smaller contractor will perform more as his own subcontractor than will the larger. Often a higher function on the continuum is assumed to increase the level (or assure an even level) of business or activity at the lower level. For example, the contractor develops a subdivision in order to increase or assure business for his contracting operation. For each function, a volume level is reached where it makes better business sense to assign lower level functions to other firms or individuals.

It is significant that as one progresses through this continuum, the degree of responsibility for project completion and the potential for financial gain (or loss) increases. Also, the need for technical construction skills decreases as the need for business skills increases.

B. Starting a Contracting Business

For the skilled craftsman desirous of becoming a contractor, a logical first step is to establish himself as a small subcontractor in his construction specialty. As such, his technical knowledge would be of value. As his business grows, he should be able to pick up the more sophisticated business skills that would be required. With a thorough knowledge of his technical specialty and a familiarity with the construction "community" in the geographic area of operation, the new contractor would be in a fair position to secure business. Geographic identity is important because working friends and acquaintances will serve as primary sources of contacts and leads from which contracts are secured. This is often a necessity since the new contractor has only his skill and reputation as a craftsman to recommend him for higher levels and types of work.

Establishment as a small subcontractor need not be a "formal" event. Extensive investment in offices and equipment is not necessary to begin in business and might obligate the new businessman to a level of business which may not be obtainable. Because an individual starting a subcontracting business will often continue to work for others as a skilled craftsman while building up his own business, he may be able to begin his own contracting firm more deliberately by working for himself only when when real opportunities appear.

General contracting requires more business skill than technical skill (although technical skill is needed to determine if subcontractors are performing as specified by contract, and also to oversee any of the specialty work which the contractor performs for himself rather than by hiring a subcontractor.) Estimating is less critical to the degree that the contractor uses estimates prepared by subcontractors (to which they may be contractually bound). Scheduling, however, is a major responsibility for the contractor. Keeping to a schedule is crucial to completing a job at the predetermined contractual cost, and a delay by any one of the many subcontractors, suppliers, and others whom the contractor is co-ordinating can force a major reorganization of the job schedule with a concomitant loss in time and money. Subcontractors branching out into general contracting should be aware of the additional managerial requirements which such a venture entails. Just as the successful skilled craftsman does not necessarily make a successful subcontractor because of the difference in required skills, the successful subcontractor is not necessarily ready to become a general contractor.

Similarly, expanding one's operation from contracting to developing requires a number of new skills. Principal among these are finance and marketing. A contractor is relatively certain of payment for his work. If his estimate is well prepared and his bid allows for a safe margin, barring any unforeseen circumstances, the contractor can be somewhat sure of his profit. The developer, on the other hand, is taking a greater risk. He operates on a profit margin that is based on an assumed product price. The developer is vulnerable on two counts: cost overrun and forced sale at a discount. Also, he must invest substantial amounts of capital, either his own or that of investors or of a lending institution.

The contractor will encounter jobs which he feels are attractive but which are clearly beyond his capacity. Beyond the obvious attractions of additional work and profitability, the larger job offers the contractor an opportunity to learn, to broaden his experience, and to prepare himself for even larger jobs in the future. When confronted with an attractive job opportunity beyond his capacity, the contractor should be wise enough to seek a joint venture with other firms. Firms band together for a specific job because they are unable, as individual units, to handle it. Together they may possess the financial, technical, and managerial resources and experience to compete for the job. By participating in such joint ventures (which usually dissolve at completion of the job), the smaller contractor gains exposure to larger jobs. Building upon this, he may develop the experience and, equally important, the credibility to progress to larger jobs on his own.

A similar aid to growth for the homebuilder is an arrangement with a prefabricator. Prefabricated homes simplify the rather complex homebuilding process, and suppliers of prefabricated homes, having a stake in their builders, offer valuable advice and assistance in marketing, management, and financial matters.

C. Requirements for Establishment of a Contracting Business

1. *Capital Requirements*

Compared with other types of business, capital requirements for construction contracting are not great. Many a small contractor will operate out of his own home, possibly with a separate room as an office and with a separate telephone (though even this is not a necessity). The degree of capitalization required to begin in business is primarily based on the size of anticipated contracts. Approximately one-tenth to one-third of the value of a contract is sufficient to carry the contractor until payment begins and a cash flow can be established. For financing, however, some evidence of a personal stake by the contractor is necessary. An official of the National Institute of Home Builders suggested that $20,000 would be sufficient to establish oneself in business. The skilled craftsman with a good reputation in the field, however, may be able to start as a part-time subcontractor with even less capital, slowly building a capital reserve with his reputation as a competent subcontractor.

2. *Equipment Requirements*

At a minimum level, little in the way of expensive equipment is required, especially for the general contractor. A truck will be the major expense, although small operators may get by with a station wagon which doubles as a family car. Skilled craftsmen who will be hired for contract execution provide their own tools. Major pieces of equipment need not be purchased, as they may be rented until such time as the volume of business warrants purchase. Specialty contracting, on the other hand, has greater equipment requirements, although the needs vary from field to field. A small carpentry contractor may get by with a few hundred dollars in hand and some power tools, whereas excavating or demolition work requires expensive heavy machinery.

3. *Physical Space Requirements*

For general contracting at a smaller operating level, little physical space is required. As stated, many smaller general contractors operate out of their own homes. For the specialty trades, physical space is needed to the degree that equipment and supplies must be stored. Many smaller specialty contractors will also operate from a private residence using a garage for storage of supplies and a driveway for vehicle parking.

4. *Licensing Requirements*

Licensing requirements vary greatly among the States. Massachusetts, for example, has no licensing requirement, and New Jersey requires no license except in the case of certain types of electrical contracting. Delaware and New Mexico, on the other hand, require a license of all contractors for both public and private work. Many States require a license for only contracts above a certain dollar value (varying from $100 to $30,000). Maryland requires a license based on an annual dollar volume of work. The State of Washington requires both a license and a surety bond of contractors. A summation of the licensing requirements by State appears in the appendix.

Although a license may not be required, many States require "prequalification" of contractors bidding on public works above a certain dollar value. This will usually involve completion of a form that requires information about the contractor's financial resources and liabilities, equipment, past record, personnel, and experience. It is generally limited to highway work, but may be required for larger public jobs.

Detailed information about licensing and prequalification requirements, as well as tax information, may be found in Summary of State Regulations and Taxes Affecting General Contractors, published annually by the American Insurance Association, 85 John Street, New York, New York, 10038.

5. *Labor Requirements*

The availability of construction labor varies from skill to skill and from one geographic area to another. Steamfitters, carpenters, electricians, and plumbers are most in demand, and the potential entrepreneur would do well to review the availability of local skilled labor in those fields prior to selecting a site for his business.

A key decision for a contractor is whether to use union or non-union labor. There are advantages either way. Union labor is available on relatively short notice, and by virtue of union membership, a certain level of proficiency is assured. Furthermore, training is not the responsibility of the contractor, but the union. The contractor need not carry a full-time crew for fear of losing good men as he might with nonunion labor. However, for these advantages, the contractor pays the price of higher wages (nonunion wages are about 85 percent of union wages) and the possibility of union disputes. For example, with a crew of a certain size, the union business agent may insist on a foreman that the contractor considers unnecessary. These kinds of problems do not arise with nonunion labor.

Many contractors come from the skilled trade unions and because of their loyalty and personal experience will use exclusively union labor. In some areas of the country, particularly the Northeast, the West Coast, and major metropolitan areas, the unions are strong, and union labor is used for virtually all construction. In such areas, the contractor has no choice but to use union labor.

6. *Education Requirements*

While there are no specific requirements for formal education for contract construction, certain minimal business skills are needed for even a small business. There is evidence that higher levels of formal education and larger-size operations are directly related. Below is a table showing the education level by size of operation based on a response of almost 9,000 home builders in a 1969 survey of the National Association of Home Builders.

Educational Level by Size of Operation for Homebuilders, 1969

Educational level	All sizes %	Small (1-25 units) %	Medium (26-100 units) %	Large (101+ units) %
Less than high school	7.2	7.9	5.4	3.1
High school	25.2	29.1	21.5	14.1
Vocational school	4.3	4.6	3.3	1.4
Some college	27.2	27.2	28.0	22.6
Associate degree	2.3	2.1	2.5	3.1
Bachelor's	29.3	25.6	34.3	45.5
Master's	4.0	3.1	4.6	8.6
Ph.D.	0.6	0.4	0.4	1.6

While the above table implies that the larger the business, the higher the level of formal education, it also indicates that large operations can be and indeed are being run by individuals without a great deal of formal education. According to the survey, there are at least 1,500 home builders producing over 100 buildings each with only a high school education or less. Formal education is thus useful, but not essential, to success in contracting.

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TRADE ASSOCIATIONS

Associated General Contractors of America (AGC) 1957 E Street, N.W. Washington, D.C. 20006. Founded 1918. Members, 8,100. General contractors engaged in construction of factories, office buildings, warehouses, highways, bridges, dams, railroads, and municipal utilities.

Construction Industry Manufacturers Association (CIMA) 135 South LaSalle, Chicago, Illinois 60603. Founded 1949. Members, 240. Manufacturers of construction machinery, allied equipment and components; industry suppliers and publications producers.

Council of Mechanical Specialty Contracting Industries (CMSCI): 610 Ring Building, Washington, D.C. 20036. Founded 1950. Members, 250. Electrical, heating, air-conditioning, plumbing, and ventilating contractors, architects and engineers on interindustry matters, codes, bidding and contracting procedures, and legislative matters. Publication: Councilator, monthly.

Mason Contractors Association of America (MCAA): 208 South LaSalle, Chicago, Illinois 60604. Founded 1950, Members, 1,850. Masonry construction firms. Publication: Masonry, monthly.

Mechanical Contractors Association America (MCAA): 666 Third Avenue, Suite 1464, New York, New York 10017. Founded 1889. Members, 1,100. Contractors who furnish and install piping systems used for air-conditioning, plumbing, sprinkling, heating, other purposes. Publication: Mechanical Contractor, monthly.

National Association of Home Builders of the United States (NAHB): 1625 L Street, Washington, D.C. 20036. Founded 1942. Members, 43,000. Homebuilders and others associated with homebuilding (architects, mortgage lenders, manufacturers of building products, subcontractors, engineers). Publications: 1) NAHB Journal of Homebuilding, monthly; 2) Washington Scope, weekly.

APPENDIX

Following is a description of the various types of contract agreements and several methods of contract payment.

Contract Agreements

The most common type are *lumpsum* and *cost-plus*. Under the *lumpsum* contracts, the owner agrees to pay the contractor a specific amount for completion of the job, no matter what the ultimate costs are to the contractor. With *cost-plus (fixed-fee)* contracts, the owner agrees to pay direct costs, plus a specified amount (either dollar amount or percentage) for profit and overhead.

Other contract types include *unit price* (a specified amount for each measurable unit completed) and *guaranteed maximum cost* (a guaranteed ceiling price for owner and sometimes a fixed fee for contractor).

Payments

On most larger jobs, monthly progress payments—based on percentage of job completion or estimated dollar value of work performed—are made. Many jobs provide for payment as various stages of the job are completed. *The money flows from owner to general contractor to subcontractor to material supplier.* Each link in the chain depends on payments from above.

One important payment feature is retainage. On most large jobs, the contractor receives only about 85 percent to 90 percent of his estimated costs for each billing period. The rest is withheld in retainage, payable under most contracts 35 days after the job is completed and accepted by the owner. *Any mechanics' liens for unpaid labor or material bills normally must be filed within a given number of days, usually about 30, after acceptance.* It is vital to become familiar with State lien laws and procedures to afford protection when needed.

Since retainage often exceeds profit, the contractor has a considerable amount of potential working capital tied up in retainage, especially if he has many jobs in progress. This problem is especially acute for contractors who finish their work on a job early, but must wait many months before the job is completed and accepted. Of course, if there is a conflict concerning acceptance, no matter whose fault, all the contractors have their retainage held up. The effect on subcontractors is often more serious because they usually bear the main material and labor costs. Some have worked to cut down the retainage percentage.

Another payment method is common with 30- or 60-day private jobs. In these situations, ⅓ payment is made upon delivery of material and start of work, ⅓ at completion, and ⅓ 30 days after completion. Contractors often attempt to get down payments of around 10 percent.

On some small jobs of less than 30 days, the contractor receives full payment upon completion. This practice is not too common, however. And even in these cases, the general contractor may withhold retainage from the subcontractor until acceptance.

Licensing and Prequalification Requirements, by State

State	License Required for:	Prequalifications Required for:
Alabama	All projects over $20,000	Highway projects only
Alaska	Not required	Not required
Arizona	All projects	Highway projects only
Arkansas	All projects over $20,000	Highway projects only
California	All projects over $100	State projects over $50,000
Colorado	Not required	Highway projects only
Connecticut	Not required	Highway projects only
Delaware	All projects	Highway projects only
D.C.	Not required	Not required
Florida	All projects	Highway projects
Georgia	Not required	Not required
Hawaii	All projects	May be required on public projects
Idaho	Public projects over $1,000	License serves as prequalification
Illinois	Not required	Highway projects only
Indiana	Not required	State work over $20,000, except State colleges and universities
Iowa	Not required	Highway projects only
Kansas	Not required	Highway projects only

Kentucky	Not required	Highway projects only
Louisiana	All projects over $30,000	May be required for highway projects
Maine	Not required	Not required
Maryland	Registration for $5,000 volume per annum	Highway projects only
Massachusetts	Not required	State Department of Public Works projects over $50,000
Michigan	Registration for residential projects	Highway projects only
Minnesota	Not required	Not required
Mississippi	All projects over $10,000	All public projects over $25,000
Missouri	Not required	Not required
Montana	Public projects over $1,000	Highway projects only
Nebraska	Not required	Highway projects over $2,500
Nevada	All projects	Highway projects only
New Hampshire	Not required	All public projects
New Jersey	Electrical contractors only	All State projects
New Mexico	All projects	Highway projects only
New York	Not required	Not required
North Carolina	All projects over $20,000	All State projects over $20,000
North Dakota	All projects over $5,000	Highway projects only
Ohio	Not required	Highway projects only
Oklahoma	Not required	Highway projects only
Oregon	Not required	All public projects over $10,000
Pennsylvania	Not required	Highway projects only

Puerto Rico	Not required	Not required
Rhode Island	Not required	Not required
South Carolina	Registration for projects over $30,000	Highway projects only
South Dakota	Not required	Highway projects only
Tennessee	Registration for projects over $10,000	Highway projects only
Texas	Not required	Highway projects only
Utah	All projects	Projects under State Road Commission or State Building Board
Vermont	Not required	All State Highway Department projects; highway and bridge projects over $50,000
Virginia	Registration for projects over $20,000	State highway projects only
Washington	All projects	Highway projects only
West Virginia	Not required	Highway projects only
Wisconsin	Not required	May be required on public projects
Wyoming	Electrical contractors only	Highway projects only

OFFICE OF MINORITY BUSINESS ENTERPRISE (OMBE) AFFILIATE ORGANIZATIONS

Albuquerque

National Economic Development Association (NEDA)
1801 Lomas, N. W.
Albuquerque, N. M. 87104
508/843-2386
Victor M. Casaus, Regional Vice President

Atlanta

Atlanta Business League (NBL)
329 Walker Street, S. W.
Atlanta, Georgia 30314
404/524-5449
Franklin F. O'Neal, Executive Director
Wendell White (OMBE Representative)
404/526-6304

Baltimore

Morgan State College Minority Business Enterprise Project
2108 North Charles Street
Baltimore, Maryland 21218
301/685-0610
Ralph J. Ross, Executive Director

Boston

The Roxbury Small Business Development Center
126 Warren Street
Roxbury, Massachusetts 02119
Bernard Wiley—Acting Executive Director
617/427-6333
Frank Bispham (OMBE Representative)
617/223-2381

Chicago

Chicago Economic Development Corporation (CEDC)
162 North State Street, Suite 600
Chicago, Illinois 60601
231/368-0011
Garland Guice, Executive Director
Bennett Johnson, Jr. (OMBE Representative)
312/353-4460

NEDA
537 Dearborn South
Chicago, Illinois 60605
312/939-2607
Gilbert M. Vega, Regional Vice President

Cincinnati

Determined Young Men
3880 Reading Road
Cincinnati, Ohio 45229
513/221-0180
Merven Stenson, Executive Director

Cleveland

Greater Cleveland Growth Corporation
690 Union Commerce Building
Cleveland, Ohio 44115
216/241-4313
Melvin Roebuck, Executive Director

Minority Economic Developers Council (MEDCO)
10518 Superior Avenue
Cleveland, Ohio 44106
Armond L. Robinson, Administrator

Dallas

Dallas Alliance for Minority Enterprise (DAME)
7200 North Stemmons Freeway
Suite 1006, UCC Tower
Dallas, Texas 75222
214/637-5170
Walter Durham, Executive Director

Denver

Colorado Economic Development Association (CEDA)
1721 Lawrence Street
Denver, Colorado 80202
303/255-0421
Edward Lucero, Executive Director

Detroit

Inner City Business Improvement Forum (ICBIF)
6072 - 14th Street
Detroit, Michigan 48208
313/361-5150
Walter McMurtry, President

El Paso

NEDA
First National Building
Suite 10B
109 North Oregon Street
El Paso, Texas 79901
915/533-7423
Jose Manuel Villalobos, Regional Vice President

Indianapolis

Indianapolis Urban League
445 North Pennsylvania Street
Indianapolis, Indiana 46204
317/639-5391 or 253-5418
Sam Jones, Executive Director

Kansas City

Black Economic Union (BEU)
2502 Prospect
Kansas City, Missouri 64127
816/924-6181
Curtis McClinton, President

NEDA
703 North 8th Street
Kansas City, Kansas 66100
913/342-6663
Richardo Villalobos, Regional Vice President

Los Angeles

South Central Improvement Action Committee (IMPAC)
8557 South Broadway
Los Angeles, California 90003
213/751-1155
Louis Wilson, Director

The East Los Angeles Community Union (TELACU)
1330 South Atlantic Boulevard
Los Angeles, California 90022
213/268-6745
Claude Martinez, Director of Development

NEDA
5218 East Beverly Boulevard
Los Angeles, California 90022
213/724-6484
Silvestre Gonzales, Regional Vice President
Jack Wilburn, Coordinator
213/824-7691
Powell McDaniel (OMBE Representative)
213/824-7715
Joseph Luna (OMBE Representative)
213/824-7715

Memphis

Memphis Business League (NBL)
384 E. H. Crump Boulevard
Memphis, Tennessee 39126
901/574-3213
Leonard J. Small, Sr., Project Director
Harold Jones (OMBE Representative)
901/534-3216

Miami

NEDA
8551 Coral Way
Suite 307
Miami, Florida 33155
305/221-5531
Dr. Antonio Machado, Regional Vice President

Newark

MEDIC Enterprises, Inc.
287 Washington Street
Newark, New Jersey 07102
201/642-8054

New Haven

Greater New Haven Business and Professional Men's Association
226 Dixwell Avenue
New Haven, Connecticut 06511
Gerald S. Clark, Executive Director
203/562-3819

New York

Puerto Rican Forum, Inc.
156 Fifth Avenue
New York, New York 10010
212/691-4150
Hector I. Vasquez, Executive Director

New York (continued)

Capital Formation, Inc.
215 W. 125th Street, Room 313
New York, New York 10027
Hirom C. Cintron, Director, Harlem Office
212/222-9650

Brooklyn Local Economic Development Corporation (BLEDCO)
1519 Fulton Street
Brooklyn, New York 11216
212/493-1663
Preston Lambert, Executive Director

NEDA
19 West 44th Street
Room 407
New York, New York 10036
212/687-1128
David J. Burgos, Regional Vice President

Philadelphia

Entrepreneurial Development Training Center
1501 North Broad Street
Philadelphia, Pennsylvania
215/763-3300
Alphonso Jackson, Director

Phoenix

NEDA
Amerco Towers
2721 North Central
Suite 727 South
Phoenix, Arizona 85004
602/263-8070
Joseph Sotelo, Regional Vice President

Pittsburgh

Business & Job Development Corporation (BJDC)
7800 Susquehanna Street
Pittsburgh, Pennsylvania 15208
412/243-5600
Forrest L. Parr, President
Marian Diggs (OMBE Representative)
412/644-5529

Richmond

National Business League
700 North Second Street
Richmond, Virginia 23219
703/649-7473
Allen Roots, Acting Project Director

San Antonio

NEDA
1222 North Main Street
Kallison Tower, Room 422
San Antonio, Texas 78233
512/224-1618
Cipriano F. Guerra, Jr. Regional Vice President
Jesse Rios (OMBE Representative)
512/225-5511

San Francisco

Plan of Action for Challenging Times (PACT)
635 Divisadero Street
San Francisco, California 94117
415/922-7150
Everett Brandon, President

Seattle

United Inner City Development Foundation
1106 East Spring St. - Xavier Hall
Seattle, Washington 98122
206/626-5440
Wilson Gulley, Executive Director

Washington, D. C.

Mayor's Economic Development Committee (MEDCO)
1717 Massachusetts Ave., N. W., Room 704
Washington, D. C. 20036
202/667-6480
Michael D. Wallach, Director, Business Assistance Center
Curley King (OMBE Representative)
202/967-5051

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